Sweet peppers are a popular crop with farmers in the region, they are versatile and love the sun - they can be grown both on open fields and in greenhouses. Monsanto's Tycoon is a hybrid suited for open fields whereas Red Knight is our ideal greenhouse variety. Whichever way you choose to grow yours, successful pepper growing requires that the grower observes these general guidelines:

**Climatic and Soil Requirements**
A pepper crop does best in warm climate and in the mid altitude areas. The crop does better in deep well drained soils with an optimum pH of 5.5 to 6.8.

**Nursery Management**
Peppers are first produced in the nursery before they are transplanted in the main field. Seedlings should be raised at least 45 days before they are transplanted. Proper nursery management including spacing to ensure health and strong seedlings is important. Transplanting should be done in the evening for better survival rates.

**Spacing and Staking**
- Peppers are planted in double rows on 90cm beds. Spacing is 30 to 60 cm between plants and rows are spaced about 45 cm apart on the bed. Plants should be spaced in an alternating or zigzag pattern i.e. staggered. Typical plant populations are 10,000 to 12,000 plants per acre.
- In-row spacing should be adapted for warm season and cool season production as well as altitude, this is usually between 45-60cm
- Staking is done using sticks and strings. It keeps the plant upright and also keeps the fruits away from the soil.
- Staking of peppers has a marked effect on keeping the canopy intact, thus preventing sunscald on the fruit. It also prevents the plant from splitting during a heavy fruit load.

**Fertilization**
- Peppers require sufficient supply of essential nutrients for maximum yield. A soil analysis should be carried out to determine available nutrients.
- As a standard, the farmer should target 80-100kg/acre of Nitrogen, 25-45kg/acre of Phosphate and 80-100 kg/acre of Potash.
- Nitrogen should be applied in instalments especially on sandy soils. Most peppers are subject to BER (Blossom-End Rot) and care should be taken to avoid calcium deficiencies that may lead to this disorder.

As a guide, 4 tonnes of manure during land preparation, 150kg/acre of DAP during transplanting, at least 3 applications of 100kg of NPK at 3 weeks after transplanting, at flowering and during fruit formation. Use additional calcium fertilizer during first fruiting and when BER symptoms are observed.

To control BER, follow these basic practices:
1. Grow pepper crops on well-drained soils.
2. Plant on raised beds to ensure good drainage. Avoid the excessive use of ammoniac or nitrate nitrogen, highly soluble potassium, magnesium or sodium salts.
3. Cultivate shallowly; don't damage roots especially after fruit set and in dry weather.
4. Maintain uniform soil moisture throughout the growing season.

Continued on pg. 3 ...
Dear Valued Customer,

Agriculture and you, our customer, are at the core of everything we do. To help you profitably meet market needs and provide you with exactly what growers are asking for in a vegetable seed company, we introduce to you our re-defined, grower focused Seminis® and De Ruiter™ brands.

As a grower you face unique challenges and have specific growing conditions within your production environment, and you deserve product performance and the crop expertise to match. Going forward, Seminis is dedicated to our open-field and unheated greenhouse products, and De Ruiter™ is focused on glasshouse, heated greenhouse and rootstock products.

Our brands are the promises we make regarding what you can expect from us. That promise for Seminis and De Ruiter is relevant and credible choices among competing offerings. But we hope it provides you with a seed partner focused on what growers have told us they’re looking for in a vegetable seed company. As always, please contact your Monsanto team member with any questions or request for a personal meeting.

Elizabeth Mranda

Hybrid Onion Jambar

“excellent quality and high-yielding onion variety”

In the Spotlight

Hybrid Onion Jambar

By Jared Onduso

Features

- Matures in 90 days
- Very high yielding 23 t/acre
- Uniform bulbs shape
- Better storage 6 Months
- Brilliant red color skin outside and inside
- Easy to sell
- Vigorous plant, tolerant to diseases

Word from Management

Pest and Disease Control

Irrigation

- Peppers require about 25-35mm water per week, avoid shortages during fruit set and flowering as this is the critical period for production of this crop. Water shortages at this stage will lead to abortion of flowers and fruits resulting in yield losses. Drip irrigation provides the best results as it allows for precision irrigation and soluble fertilizers can be applied successfully through the drippers at the root zone.
- Avoid overhead irrigation as it increases prevalence of leaf diseases.

Pruning and Crop Management

- Nip the main shoot when plants are young to allow 2-3 branches for maximum production.
- Remove first flowers and excess fruits allowing 2-3 fruits per branch to get bigger fruits.

Weed Control

- Weed control is important during the growth phase 65-80 days; little or no weed competition must be allowed to ensure optimum yields.
- Weeds can be controlled mechanically, by hand or by means of registered herbicides. Good weed control reduces on pest and disease occurrence.

Harvesting

Fruits are harvested green or allowed to develop colour to either red, yellow or orange depending on the variety. Fruits are harvested early in the morning and kept under shade to remove the field heat before transporting to the market.

In Mid-March, Monsanto Africa’s Leadership Team visiting Kenya made an extensive and successful visit to farmers and distributors in the Machakos region.

The high profile team - Kobus Lindeque (Africa Area Lead), Ebrahim Faizel (Customer Operations Area Lead Africa), Andrew Maher (Credit Lead Africa) - were in the pleasant company of hosts, Abraham Mbogi (Commercial Lead East Africa), Jared Onduso (Technical Development) and Daniel Muyoyoka (Sales Executive) as they visited both outdoor and greenhouse farmers growing Monsanto varieties.

In the Isinya area, the team visited Mr Magamba, an avid onion Jambar grower and Mr Chege who does 2 acres of greenhouse tomato Anna. In Machakos, they toured Ms. Hellen’s farm (which we featured in our last issue), where Pata Negra watermelon, Tomato Assila and Dekalb maize thrive, they later found time to see Mr. Singh who planted his first crop of Sentinel watermelon with amazing results.

These farmers impressed the team who expressed their appreciation at the great efforts our farmers and distributors were making in ensuring they get maximum benefits from Monsanto products.

Pest Control

<table>
<thead>
<tr>
<th>Pest</th>
<th>Symptoms/Damage to crop</th>
<th>Management practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial Canker</td>
<td>Wiltting of one side of leaves, light coloured streaks, cankers and discoloration of the internal of stem</td>
<td>Crop rotation, resistant varieties and field hygiene to prevent spread</td>
</tr>
<tr>
<td>Bacterial Speck</td>
<td>Dark brown to black spots often surrounded by a halo, lesions on fruits speck-like and superficial</td>
<td>Resistant varieties, spray of copper based fungicides</td>
</tr>
<tr>
<td>Bacterial Wilt</td>
<td>Dropping of upper leaves followed by wilting of the entire plant, clayy coast from stem when cut</td>
<td>Crop rotation and field hygiene - foot baths, sterile secateurs</td>
</tr>
<tr>
<td>Early Blight</td>
<td>Irregular, dark brown, necrotic areas on the leaf surrounded by yellow sections</td>
<td>Fungicide spray program: Mancozeb, Metalaxyl, Prinol &amp; Probelin</td>
</tr>
<tr>
<td>Late Blight</td>
<td>Large, irregular, greenish, water-soaked patches on leaves, enlarge and turn brown and paper-like</td>
<td>Fungicide sprays in wet weather: Chlorothalonil, Metalaxyl &amp; Propiconazole</td>
</tr>
<tr>
<td>Powdery Mildew</td>
<td>Light green to bright yellow lesions developing on the upper leaf surface, light powdery fungal growth</td>
<td>Locate new fields away from old ones, field hygiene, tebuconazole</td>
</tr>
<tr>
<td>Whirlfies</td>
<td>White insects that suck sap, sugars on leaves resulting in growth of moulds, transmit virus</td>
<td>Control early: Buprofezin, acetamiprid</td>
</tr>
<tr>
<td>Aphids</td>
<td>Suck sap destroying growth parts, transmit virus</td>
<td>Pirimicarb, deltamethrin</td>
</tr>
<tr>
<td>Thrips</td>
<td>Cause stinky marks on leaves and fruits, reduce quality of fruits</td>
<td>Spinosad, Synthetic pyrethroids, Azadirachtin</td>
</tr>
<tr>
<td>Leafminer</td>
<td>Destroy leaf by mining, reduced food making</td>
<td>Abamectin, Cyproconazole</td>
</tr>
<tr>
<td>Mites</td>
<td>Destroy leaf by sucking sap, distortions</td>
<td>Abamectin</td>
</tr>
</tbody>
</table>
Meet Burundi’s Mercedes F1 Champion

By Wemaie Mwangi

C ibitoke is a picturesque province located amidst the rolling green cold mountains on the north western tip of Burundi. It borders the Democratic Republic of Congo (DRC) to the west and Rwanda to the north. It is famous for its successful production of ‘common Rugombo’ i.e. white or yellow onion.

Mr. Sylvain Nahomvukiye who farms in Cibitoke is doing his third crop of Mercedes F1 and from his 2 hectares he expects no less than 50 tons per hectare - if the previous seasons results are anything to go by. In the past, he cultivated white onion, Texas Grano variety, but it gave him a yield of just 28 tons per hectare, well below what he is now harvesting from Mercedes F1.

“I love Mercedes F1 more than any other variety I have ever grown - the bulbs are uniform in shape and size, and even if I store my onions for 4-5 months, there isn’t much loss in the yield weight or in quality,” said Sylvain. Mercedes F1 is also highly resistant to diseases such as; Downey mildew, White rot, and Root rot. Its early maturity, after about 90 days, has been of great benefit to him as he previously had to wait for 120 days with Texas Grano which is also not as resistant to diseases as Mercedes.

This farmer has since doubled his income and fellow onion farmers in the locality have been streaming into his farm in their numbers to gain insight into this new variety that Sylvain speaks about so fondly. To sum it up in the words of Sylvain “Mercedes F1’s has no equal!” We can’t help but agree with him.

Meet Blue Dynasty Farmer

By Isaac Nzuka

Mr. Waweru Njoroge Kanyata, a farmer from Kangari location Murang’a district, a region well-known for its location Murang’a district, a region well-known for its cabbage, squash and tea growing. Mr Waweru who has been growing cabbage for 30 years, has in the past been disappointed by varieties that are susceptible to Black rot and Ring spot diseases which are prevalent in this region. Since he started growing Blue Dynasty, things are different, he says the cabbage is resistant to disease and its quality is not compromised.

Mr Waweru gladly testifies that this early maturing variety (matures in 80-85 days) has a round compact head which makes it easy to transport. “I applaud Monsanto for their hybrid products like Blue Dynasty cabbage. It is resistant to diseases and hence most of the produce meets the standards of my customers. I have been harvesting over 68 tonnes/acre and look forward to continue growing this variety,” a jovial Mr Waweru says.

Doubling Yield with Double Cobbing DK8031

By Sammy Okita

DK8031 is a hybrid maize variety that grows in a wide range of geographical zones, but is most suitable for mid to low altitude regions. Grace Nyaboke is a farmer in Kisii South, Suneka Division, Iyabe location. She has about one and a half acres on which she farms. This is an area that lies within the mid altitude zone of Kisii and Grace has been careful in picking varieties of maize seed that give her maximum yield on her small piece of land.

For the past 2 years Grace has been growing DK8031 maize seed variety from Monsanto Kenya Limited. Grace says that she harvests upto 8 bags of maize from 2 kgs of DK8031 seed planted on a ¼ acre portion of her land.

As shown in the photo (above) taken at her farm on May 14th 2012 Grace is happy that each maize plant in her field is double cobbing. She has intercropped the maize with beans - improving on her food supply this season.

Grace planted her crop on 17th March 2012, the maize has tasselled and should be ready for harvest in June. DK8031 is a fast-maturing seed variety that takes between 90 to 120 days to mature. With the climate in Suneka, Grace is certain to plant twice this year therefore doubling her yield of maize.

With good rainfall and proper fertilization DK8031 can yield between 28 to 35 bags of grain per acre. At planting it is important for farmers plant at recommended spacing of 25cm by 75cm (one seed per hole) or 50cm by 75cm (2 seeds per hole). Spacing of seeds at planting is critical if the recommended yields are to be attained by farmers. Any gaps that are not planted or a crop planted with wide spacing will drastically impact the yields per area.

For now Grace is happy to plant DK8031 and very soon she will be planting other Dekalb maize seed varieties that are going to be released into the market. Due to the heavy rains currently experienced across the country, farmers are advised to harvest their crop as soon as it reaches physiological maturity to avoid rotting of grain in the field.

Timely harvesting is therefore critical for proper storage of grain.

New Varieties Released

Two new maize hybrids and one cotton variety have been officially released for planting in Kenya by the Ministry of Agriculture. The maize varieties DKC90-89 and DKC90-53 and cotton variety DP 486 were released at Kilimo house on Thursday May 24th 2012. These maize varieties are best suited for planting in the mid and mid-late altitude ecologies and will soon be available to farmers in these regions. Please check out our upcoming issues for more information on this.
Recipe: Vegetable Samosas

By Ken Chumo

**Samosa Filling**

**Pastry**

- 225gm. plain flour
- 2 teaspoon salt
- 2 tablespoons vegetable oil
- Warm water to make dough

**Ingredients**

- 4 large potatoes, boiled in their skin.
- 1 cup fresh peas, boiled and drained
- 3 tbs. oil
- 1 tsp. cumin or jeera seeds
- 1 inch piece of ginger, peeled and grated
- 1 green chillies, finely chopped
- 1 tsp. coriander powder
- 1/2 tsp. chilli powder
- 1 tsp. amchoor (dry mango powder) or 1 tbs. lemon juice
- 1/2 tsp. Garam Masala
- 1 tsp. cumin or jeera seeds, allowed to splutter and brown, not burn
- 1 green chillies, finely chopped
- 1 cup fresh peas, boiled and drained
- 1 1/2 tsp. salt (to taste)

1. Place flour, salt and oil in a bowl. Rub with your fingers, like pastry flour. It should look like bread crumbs. Make a firm dough, adding a little water at a time. Cover in plastic wrap and set aside at room temperature for 30 minutes.

2. Divide the dough into equal pieces. Roll each piece into a ball and roll out into a circle of 15 cm.

3. Brush with oil, dust with abundant flour, place another round on top after having rolled as the first. Repeat this operation so that you now have three layers rolled out, oiled and dusted.

4. Roll out the triple layer until quite thin. Place on a hot pan free of oil. Do not allow to brown. Only cook lightly. Turn to cook the other side only for about 30 seconds. It should now look like a whitish chapatti.

5. On taking it out of the frying pan separate the three layers from each other. They should readily come apart. Put aside like a whitish chapati.

6. Add salt and seasoning and lemon juice to taste. Add coriander leaves and mix.

7. Turn the heat off and leave the mixture open, to cool.

8. Make all samosas like this. Keep them covered with a moist cloth. If pastry is allowed to dry, it is more likely to burst during cooking. Take out and place on kitchen cloth. If pastry is allowed to dry, it is more likely to burst during cooking. Oil should not be 'smoking'. Test by putting a small piece of dough into it, it should sizzle and rise gently to the top.

9. Put as many samosas as will spread out easily in your pan and fry gently till golden brown. Turn them over gently a few times to ensure even browning. Take out and place on kitchen paper, to absorb surplus oil.

What is Late Blight?

Late blight is a very destructive and very infectious disease that affects tomato and potato (not sweet potato). It is the same disease that led to the Irish Potato Famine in the 1840s. It is caused by the fungal-like pathogen, Phytophthora infestans. It is prevalent during the rainy season and when there is excess moisture or humidity in the greenhouse.

What is its symptoms?

Lesions develop on leaves and stems as dark, water-soaked spots. These spots enlarge until the entire leaf or stem turns brown and dies. Dead leaves typically remain attached to stems. The undersides of the leaves may be covered with a white fuzzy growth that contains the spores of the pathogen. On the stems, late blight lesions appear brown to almost black. Infected tomato fruits develop tiny, dark or olive-colored lesions which may cover large areas and in particular the upper half of the fruit.

What can you do about it?

- Start with disease-free tomato seedlings.
- Scout daily in the morning hours for any symptoms on the crop.
- Rotate tomato fields with non-solanaceous crops. Crop rotation is for the early blight and Septoria leaf spot diseases which are seasonal problems, not late blight. The late blight organism requires living tissue to survive; it does not survive in the soil or carry over in seed.
- Control tomato volunteer plants as well as solanaceous weeds such as hairy nightshade.
- Good fungicide coverage is necessary.
- Apply late blight specific fungicides in affected fields and nearby fields on a regular basis until tomato harvest is complete. Shorten spray interval when disease pressure is high or environmental conditions remain favourable for the late blight pathogen (cool and wet).
- Alternate fungicide applications among different chemical classes: include a contact (protectant) fungicide in each application (chlorothalonil, mancozeb, or copper). Addition of a protectant fungicide enhances resistance management and fungicide effectiveness; e.g. copper oxychloride, Dimethomorph+ Mancozeb or Fenamoxone+cymoxanil or Metalaxyl+MancozeB.
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Your Questions Answered

Is this Late blight?

How do I tell if it isn’t another disease or disorder with similar symptoms?

By Samson Opala

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How is it different from other diseases with almost similar symptoms?

When diagnosing for late blight examine all parts of the affected plants thoroughly. The late blight pathogen produces most of its spores at night and as a result it is more visible in the morning and then for several early in the day for the disease. Generally the size of lesions for late blight can affect all parts of the plant whereas some of the ‘imitators’ cannot.

Below are some of the diseases that portray symptoms most similar to late blight and how they differ from the latter:

1. Gray mold - This is the disease most commonly confused for late blight because the pathogen causes leafy lesions, stem lesions, and affects fruits. These symptoms are often associated with dead plant tissue (flowers, leaves). The pathogen typically needs to become established on these dead tissues before it can attack living plant tissue. Affected fruit are soft and are not brown. The pathogen growth is fuzzy and gray to brownish,
Burundi’s - Avet Intrants Agricoles et Veterinaires

Avet Intrants Agricoles et Veterinaires is situated on Mwezi Gisabo Avenue opposite the Catholic Cathedral in Bujumbura, Burundi. It was established in 1992 to supply farmers with vegetable seeds, veterinary services, drugs and animal feed.

Dr. Fidel Habonimana started working with the then Regina seeds by importing various vegetable seed varieties directly from Holland in 1998. Now, AVET INTRANTS AGRICOLES ET VETERINAIRES is the sole supplier of Seminis vegetable seed varieties in Burundi and the western part of the democratic Republic of Congo (DRC) covering such cities as Goma and Uvira.

In their early years of business, this establishment’s key products from the then ‘Royal Sluis’ were tomato Floradel, white onion Texas Grano, cabbage Copenhagen and red onion Red Creole. However, today they are the largest movers of Seminis hybrid seed in that part of the region selling significant volumes of; hybrid cabbage Oxylus F1, hybrid white onion Mercedes F1 and hybrid red onion Jambar F1. They are pleased in their continued business relationship with Monsanto and believe that the transformation to hybrid varieties could not have come at a better time for them.

Besides selling seeds to stockists, farmers, organisations and government, they have moved out of the comfort of the counter and will be seen in the countryside training farmers in the demonstration plots in such places as Cibitoke in the North, Bururi in the south and in Bujumbura. This has endeared them to farmers while growing the appetite for hybrid vegetable seed across the country.

Quiz

Can you fill in the blanks to identify some of our varieties mentioned in this edition?

S_ n_ t_n/_el a new variegated watermelon variety.

When growing pepper in the greenhouse, R_ d K_ ig_ _ is most ideal.